MICHAEL JOHNSON

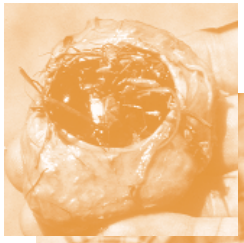
Left: Wild turkeys can adapt to a wide variety of habitats if there are dependable food sources, quality roosting sites, nesting cover, and suitable places to rear their young.

Center: Wild turkeys are opportunistic eaters, choosing a wide variety of food. Examination of turkey crops shows the importance of grasshoppers (top) and acorns (bottom).

Bottom: Wild turkeys find seeds and fruits delectable. Tree buds and catkins are also eaten.

HABITAT REQUIREMENTS

Successful restoration of wild turkeys in Wisconsin and nearly every state in the country shows that turkeys can adapt to a wide variety of habitats. However, wild turkeys do require several basic habitat components to survive in an area: dependable food sources, quality roosting sites, nesting cover, and suitable places to rear their young. These components must also be close together. Areas with highly diverse habitats are best at meeting turkeys' year-round needs. In Wisconsin a 50:50 mix of oak woodland and dairy agriculture appears ideal. Large blocks of older single species woodlands with few openings — natural openings, fallow fields, or agricultural crop lands — usually support lower turkey numbers.



JOHN KUBISIAK

NEAL PAISLEY

NEAL PAISLEY

Foods

Turkeys are opportunistic eaters, choosing a wide variety of wild foods throughout the year (Figure 7, see page 10). These diverse natural foods are common in woodlands, idle lands, and natural grass-forb or upland brush openings. Turkeys find fruits and seeds delectable and also often choose tree catkins and buds, as well as the leaves of ferns and other perennial green ground-layer plants. They actively scratch in rotting blowdown logs on the forest floor for insects and grubs, a vital protein source for poults (juvenile turkeys) and adults during summer.

Dairy farms are another important resource, especially in winter. Turkeys seek out unharvested crops, waste grain, and undigested corn and plant remains in spread manure. During periods of deep snow, when scratching for food is difficult, spread manure can be a life saver. When snow prevents farmers from spreading manure, turkeys may seek waste grain in barnyards, undigested material in manure piles, and corn in cribs or fodder sacks.

Seed heads on plants that stand above the snow can also supply winter nourishment. In addition, turkeys will feed on the fruits of winterberry and the leaves of evergreen perennial plants like dewberry and wintergreen, which the sun, deer, or other wildlife expose from under the snow.

FOODS EATEN BY WILD TURKEYS

FRUITS

Dogwood
Cherry
Blackberry
Raspberry
Grape
Elderberry
Hawthorn
Serviceberry
Chokeberry
Viburnum
Winterberry
Wild plum
Sumac
Mulberry
Virginia creeper
Other shrubs and vines

TREE SEEDS/NUTS

Oak
Hickory
Maple
Pine
Spruce
Cedar
Balsam fir
Hemlock
Beech
Ash
Basswood
Elm
Locust

GRASS/SEDGE/FORB SEEDS

Sorrel
Burdock
Evening primrose
Mullein
Dandelion
Bluestem
Woolgrass (a common sedge)
Foxtail
Rice grass
Wild rye
Indian grass
Rice cutgrass
Various other grasses and sedges

OTHER VEGETATION
(catkins, buds, leaves)

Birch
Hazelnut
Ferns
Dewberry
Strawberry
Wintergreen
Partridgeberry
Black medic
Bearberry
Creeping snowberry
Clubmoss
Trailing arbutus
Bunchberry
Goldthread
Shinleaf
Watercress
Pipsissewa
Various other ground-layer herbaceous plants

ANIMAL PROTEIN

Grasshoppers
Crickets
Beetles
Leafhoppers
Grubs
Earthworms
Snails

AGRICULTURAL CROPS

Corn (waste, unharvested, stored, manure)
Oats (primarily waste grain)
Alfalfa
Soybeans

Figure 7. *Foods eaten by wild turkeys.*

MICHAEL JOHNSON

Wild turkeys roost in trees at night to avoid ground predators.

Roosting Habitat

Turkeys roost in trees overnight to avoid ground predators. Roost sites are better where topography or dense cover adds protection from wind, rain, and sleet. Woodlands with large pole-size or sawtimber-size trees with horizontal limbs offer the best roosting habitat. Turkeys may roost in conifers (pines, balsam fir, spruce, hemlock, and cedar) where available, for better insulation from harsh winter weather. Upland and lowland conifers are more common and probably used more often in the central and northern portions of the range than in southern Wisconsin.

Nesting and Brood-Rearing Habitat

A variety of habitats supply nesting cover. Many hens nest in moderately dense understory vegetation near the edges of pole-size hardwood stands. Grass-forb openings in woodlands, hay fields, and idle areas are also suitable for nesting. The most important nest site factor appears to be dense vegetation near the ground which helps hide the nest from predators.

Turkeys raise their broods where insects, grubs, and other protein sources thrive. In summer, poults must eat about a fifth of their body weight each day in insects, spiders, or other invertebrates to support their rapid growth. Woodland openings or edges between woodlands and crop fields are good habitat for this, as are prairies, savannas, hay fields, abandoned crop fields, and pastures.

DNR PHOTO

Wild turkey hens generally nest in moderately dense understory vegetation near the edges of hardwood stands.

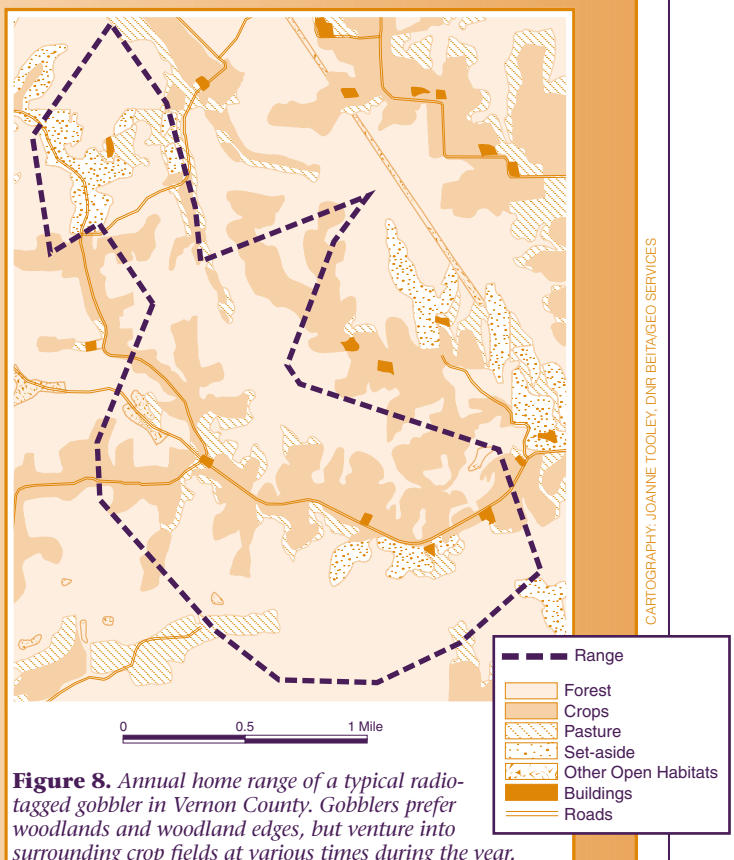
ROBERT WRIGHT

Dense vegetation near the ground helps hide wild turkey chicks from potential predators.

Wild Turkey Home Range

A turkey's home range is the overall area it occupies throughout a season or year. The turkey eats, seeks shelter, mates, and rears its young in this area. As part of a 1991-93 radiotelemetry study in Vernon County, we measured gobblers' seasonal and annual home ranges. We found that the home ranges of individual gobblers varied greatly. The annual home range size averaged 1,540 acres for gobblers monitored in all four seasons (Figure 8). We did not measure hens' home range. Research in other parts of the country shows that hens and gobblers have similar-size home ranges.

Size also varied by season. Gobblers tended to move as their needs for food and cover changed. Home ranges of radio-marked gobblers were biggest during spring breeding (March 1 to May 31), averaging about 500 acres. Presumably it expanded in response to breeding behavior. Between June 1 and August 31, however, the average home range was only 135 acres. It was about 175 acres in fall (September 1 to November 30), and slightly higher, at 185 acres, in winter (December 1 to February 28). Summer, fall, and winter ranges were generally close to one another and overlapped considerably.



CARTOGRAPHY: JOANNE TOOLEY, DNR BEITA/GEO SERVICES

Figure 8. *Annual home range of a typical radio-tagged gobbler in Vernon County. Gobblers prefer woodlands and woodland edges, but venture into surrounding crop fields at various times during the year.*

Geographic Differences in Climate and Habitat Suitability

Climate, food resources, and cover affect the distribution and relative abundance of wild turkeys in Wisconsin. Climate — the long-term average weather pattern — is the ultimate factor. Turkeys can survive temperatures lower than -40°F if they can eat enough. However, as temperatures fall below 50°F their metabolic rate speeds up, increasing their food needs. Deep snow of 10-12 inches or more not only restricts food but also increases the birds' energy costs because turkeys find it difficult to walk. Climate patterns also govern the abundance and distribution of food sources, both wild and from human activities like dairy agriculture.

The combination of cold temperatures, persistent deep snow, and limited access to food can cause starvation, effectively limiting wild turkeys to the southern two-thirds of Wisconsin. Areas where turkey numbers are higher tend to have comparatively fewer days with 12 or more inches of snow on the ground and with subfreezing or subzero temperatures (Figure 9).

Taken together, the quantity, quality, and arrangement of food, shelter, and other factors determine an area's year-round habitat suitability. These factors control how many turkeys each region can support. In areas of high abundance the landscape tends to be fairly evenly mixed between cropland and woodland, with oaks or bottomland hardwoods generally dominating the woodlands. Hay production also is relatively wide-spread.

Oak woodlands are most abundant in southwestern Wisconsin, covering 15% or more of the land area in most counties (Figure 10). In addition to producing acorn crops in most years, which are an important food source, oak woodlands are also home to many grasses, forbs, shrubs, and other trees that supply desirable fruits and seeds (see Foods, page 9).

Southwestern Wisconsin's Driftless Area has an ideal mix of woodlands, agricultural crop fields, and idle land. Ridge tops and valley bottoms have been cleared for crops while steep hillsides remain wooded. As a result, wild and agricultural foods are located in close proximity to roosting cover. Hay fields, also common throughout this region, are heavily used in summer by brood flocks foraging for insects.

In east-central Wisconsin, bottomland hardwoods (primarily silver maple, elm, and ash) are a high proportion of forest land. These may be less desirable for turkeys than oak woods because they are often flooded during spring. However, they can provide suitable roosting cover and a variety of foods. Blowdown logs are often numerous and a haven for insects, grubs, and other delectables. Also on the menu are the fruits, seeds, catkins, and leafy parts of

Agricultural crops help wild turkeys survive cold snowy winters.

ROBERT WRIGHT

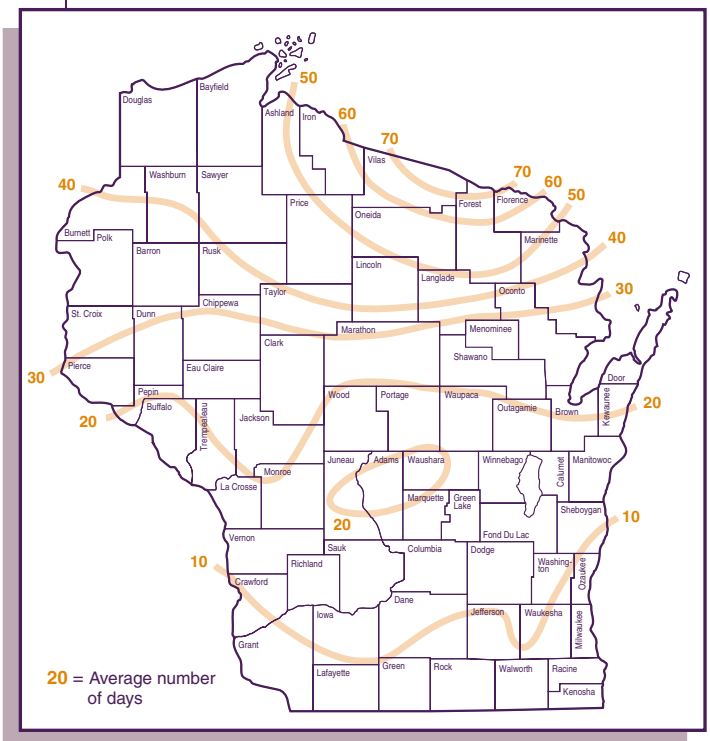
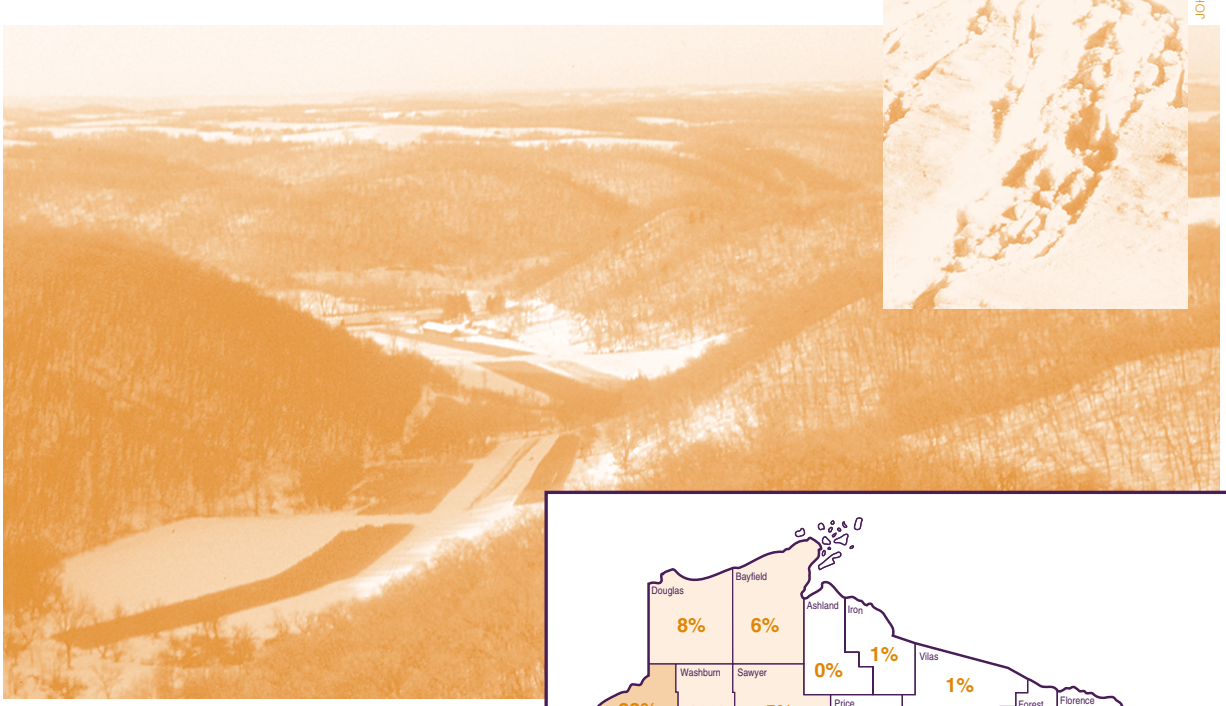


Figure 9. *Average number of days with snow depth greater than or equal to 12 inches, 1961-90. Source: Wisconsin State Climatology Office.*

many plants including such trees as maple, basswood and birch; shrubs like dogwood and hazelnut; vines such as wild grape, Virginia creeper and green briar; grasses; ferns; and others.

In much of northern Wisconsin, habitat is generally unsuitable and turkey abundance is fairly low. Large blocks of forest land dominate the landscape. Oaks are not widespread and acorn crops are unpredictable. Sugar maple, basswood, and other hardwoods dominate some forests while others are aspen, white birch, and/or conifers (pine, spruce, balsam fir, and cedar).

JOHN KUBISIAK



NEAL PAISLEY

Above: Southwestern Wisconsin's Driftless area has an ideal mix of woodlands, agricultural crop fields, and idle land.

Above right: Persistent deep snow limits access to food and can cause wild turkeys to starve.

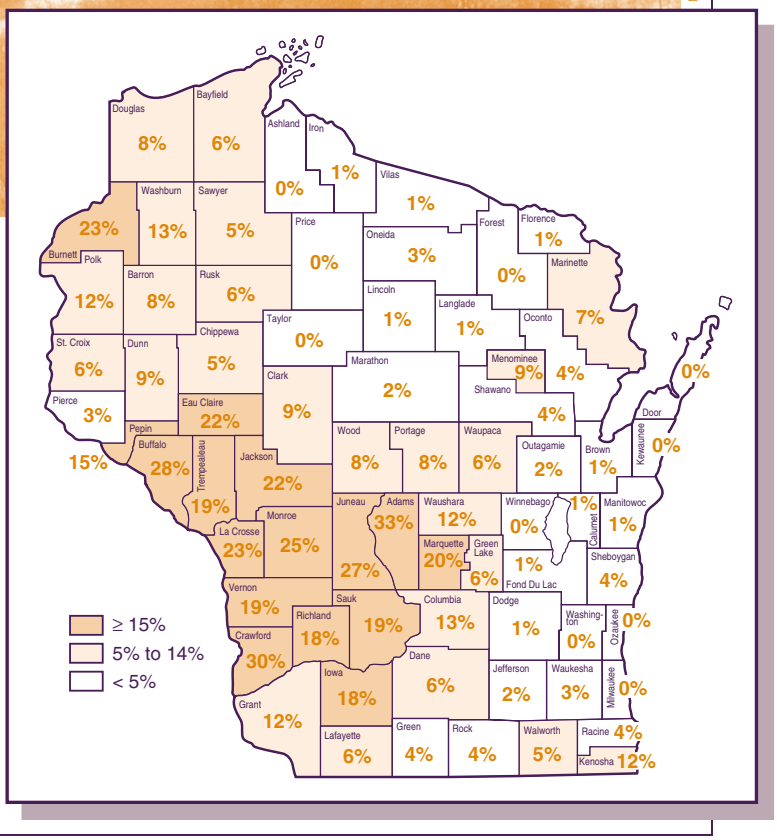


Figure 10. *Percent of total land area in oak-hickory forest, 1996. Source: USDA Forest Service, North Central Forest Experiment Station.*

SUMMARY
of Key Habitat Ingredients

Turkeys occur throughout the southern two-thirds of Wisconsin, limited to the north by cold temperatures, prolonged periods of deep snow, and limited food. Trees, shrubs, and grass in close proximity to each other are the key ingredients of good turkey habitat. Trees supply fruits, nuts, catkins, and buds for food, and nighttime roosting sites where turkeys can escape from ground dwelling predators. Mast-producing trees such as oaks and beeches are especially important. Fruit-producing shrubs offer spring nesting cover and important fall and winter food. Grassy openings supply an abundance of insects, seeds, and other foods for adults and especially for poults. In much of the state, hay, corn and oat fields take the place of native grassy openings.

How these components are arranged on the landscape significantly affects an area's suitability for turkeys and the number of birds it can support. Ideally, trees and grass should occur fairly close together because a turkey's annual home range is roughly 2 square miles. Southwestern Wisconsin's Driftless Area, with oak-dominated hillsides and cropped ridge-tops and valleys, is optimal for turkeys. The state's highest turkey densities live there and in the Kettle Moraine forests in southeastern Wisconsin.

Trees, shrubs, and grass in close proximity to each other are the key ingredients of good turkey habitat.

MICHAEL JOHNSON

Left: Fruit-producing shrubs provide spring nesting cover and important fall and winter food.

Below: A mix of trees, shrubs, and grass near each other is the key to good wild turkey habitat.

DNR PHOTO